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L7: Entry 6 of 11 File: USPT Apr 15, 1997

DOCUMENT-IDENTIFIER: US 5620702 A
TITLE: Adhesive bandages, wound dressings, sutures, drapes orthodontic rubber bands, toothbrushes, and the like

ABPL:
An adhesive bandage, wound dressing, suture-like mechanism, or surgical drape for use over a wound is made from a laminate structure of flexible rubber, a hydrophilic hydrogel polymer bonded to one side of the flexible rubber, and an adhesive bonded to the hydrophilic hydrogel polymer along at least a first section of the adhesive bandage, wound dressing, suture-like mechanism, or surgical drape. The adhesive is preferably a hydrogel adhesive with a cellulosic, polyurethane or polyacrylate base, while the flexible rubber is preferably rubber which is pretreated with hydrogel polymer prior to curing. A medicament such as CPC or BAK can be bonded to the hydrophilic hydrogel polymer along the non-adhesive portion of the adhesive bandage, wound dressing or surgical drape to provide slow release medication, and if desired, removable plastic may be provided to cover the adhesive portions. The bandage, wound dressing, suture-like mechanism, or surgical drape may take various shapes, sizes, and arrangements. Orthodontic rubber bands, toothbrushes, dental floss and sutures are also disclosed having a similar arrangement except that the flexible rubber in the case of the toothbrush, dental floss and suture is replaced with bristles, floss thread, and suture thread, and a preferably slow-release medicament is applied to the hydrophilic hydrogel polymer instead of an adhesive.

BSPR:
Preferably, the flexible elastomer used as the base of the adhesive bandage, wound dressing, suture-like mechanism, or drape, is a rubber which is specially treated with a hydrogel polymer prior to curing such that the rubber when cured will permit water vapor to escape therethrough. Also, preferably, the hydrogel which coats the rubber is a hydrophilic hydrogel polymer such as polyvinyl pyrrolidone, polyhydroxyethyl acrylate or methacrylate, polyhydroxypropyl acrylate or methacrylate, and copolymers of these with each other or with acrylic or methacrylic acid, acrylic or methacrylic esters or vinyl pyridine. The hydrogel adhesive is preferably hypoallergenic and uses a cellulosic, polyurethane, or polyacrylate base.

DEPR:
Bonded to at least certain sections of the hydrogel polymer coating 20 is an adhesive 25. The adhesive is preferably a

hypoallergenic hydrogel adhesive which uses a cellulosic, polyurethane, or polyacrylate base. Again, the adhesive is bonded to the hydrogel polymer coating in well known manners. Optionally, a medicament 30 which is bondable to the hydrogel polymer coating 20 is bonded at desired locations. If desired, in fact, the medicament 30 can be mixed with the hydrogel adhesive 25. Preferred medicament include quaternary ammonium compounds such as cetyl pyridium chloride (CPC) or Benzyl Ammonium (BAK) which are both surfactants and bactericides. When bonded to the hydrogel coating, by heating and drying a dilute solution of the quaternary ammonium compound onto the hydrogel coating, the resulting structure allows bactericide to slowly release onto a surface, such as skin or a wounded area of skin, which is in intimate contact with the coating 20. Similarly, a chemical encompassing wound healing factors may also be fixed into the hydrogel coating so as to slowly release onto a wound which is covered by the adhesive bandage 10.

DEPR:
As seen in FIG. 5, an operation wound 299 is sutured by conventional stitches or staples 201 which are sewn or stapled through drape 310 which is left in place upon completion of the operation. The drape 310 is cut by the surgeon along dash lines 277 which is the periphery of the sewn area. In this manner, the large excess drape outer portion 283 of the drape 310 is removed, and the smaller inner portion 287 directly around the stitches 201 is left in place until the wound 299 heals and the stitches 201 are removed. With the crossing sections of the stitches not in direct contact with the wound area, the cosmetic scars from the stitches or staples will be largely eliminated. Meanwhile, the bactericide agent in the hydrogel and adhesive undercoating 225 of the drape prevents regrowth of bacteria on the skin under portion 287, and thereby prevents (re)infection. Also, the elastomeric properties of the rubber drape permit the drape to lie against the skin without end forces that would interfere with normal movement of the sewn area. Thus, the sutures are not restricted, and the healing of the wound may proceed without medicament.

CCOR:
424/448

L7: Entry 10 of 11 File: USPT May 12, 1992

DOCUMENT-IDENTIFIER: US 5112618 A
TITLE: Hydrogel wound dressing product

DEPR:
The hydrogel herein is particularly suited for use as part of a wound dressing product. The hydrogel is a moist hydrogel, containing more than 50% by weight of water, and is capable of providing some adhesiveness to the wound dressing product. However, the adhesive property of the hydrogel is not such that it will damage cell or tissue growth deleteriously, upon removal of the wound dressing product from the wound. That is, the hydrogel provides an adhesive tenacity to aid in adhering the wound dressing product to the patient and wound site. The hydrogel exhibits a high degree of fluid absorption and can thereby absorb a sufficiently large quantity of wound exudate.

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L7: Entry 11 of 11 File: USPT Jun 5, 1990

DOCUMENT-IDENTIFIER: US 4931282 A
TITLE: Pressure-sensitive medical sealant

BSPR:
Another art involving polymeric matrices that are swelled in water is the hydrogel art. These compositions are covalently crosslinked and are used extensively in contact lenses. Many of these hydrogels are based on polyvinylpyrrolidone and have been extensively used in medical applications. Because of the long experience with use of polyvinylpyrrolidone in medical applications its safety is well known making it a desirable candidate for biocompatible adhesives. While most hydrogels are not adhesive, EPO Appln. No. 83305770.6 (publication 0107376, 02/05/84) describes a hydrogel which has some tack and is recommended for use as a wound dressing. The hydrogel is prepared by dissolving between 15% and 25% by weight polyvinylpyrrolidone in water and crosslinking with ionizing irradiation (1 to 5 Mrads, electron beam). Here again the ionizing radiation process is not desirable.

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